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**Marital Transitions and Children's Adjustment
Understanding Why Families Differ From One Another and Why
Children in the Same Family Show Different Patterns of Adjustment**

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by

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This report is part of a set of research studies on the National Longitudinal Survey of Children and Youth. /
Le présent rapport fait partie d'un ensemble d'études sur l'Enquête longitudinale nationale sur les enfants et les
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Abstract

This study examines the effects of movement into or out of poverty, the magnitude of changes in family income, and sources of these income changes. It considers family pathways and developmental behaviours of 4- to-11-year-old children. Analyses were based on a longitudinal sample of 8300 children from cycles 1 and 2 of the National Longitudinal Survey of Children and Youth, covering the period from 1994/95 to 1996/97.

Results indicated that disadvantages for young children in persistent poverty were sustained over time, but that prolonged exposure to poverty did not further escalate children's developmental problems. Simply moving out of poverty did not appear to be sufficient to improve children's developmental outcomes unless it was accompanied by a substantial improvement in living standards. Among non-immigrant families who were poor during both cycles, small gains in absolute income actually elevated children's behavioural problems. Absolute income increases among persistently poor non-immigrant families were related to new employment of the parents and decreases in welfare dependence. However, among persistently poor immigrant families, absolute income increases tended to reduce children's behavioural problems. Finally, results showed rather weak relations between changes in poverty status and parental characteristics. Changes in the economic situations of non-immigrant families were not as important as changes in parental characteristics in influencing children's developmental outcomes, although the differences were often not substantial. Among immigrant families, however, changes in economic situations were often more important than changes in parental characteristics.

Résumé

Cette étude porte sur les effets du mouvement des familles d'une situation de pauvreté à une situation de non-pauvreté, sur l'importance des changements dans le revenu familial et sur les sources de ces changements de revenu. L'étude prend en compte le cheminement de la famille et le développement des enfants âgés de quatre à onze ans. Les analyses ont reposé sur une étude longitudinale effectuée auprès de 8 300 enfants des cycles I et II de l'Enquête longitudinale nationale sur les enfants et les jeunes s'échelonnant de 1994-1995 à 1996-1997.

Les résultats de l'étude indiquent que les désavantages subis par les jeunes enfants qui vivaient en permanence dans une situation de pauvreté persistaient au cours des années. Toutefois, le fait d'être exposé à la pauvreté pendant une période prolongée ne contribuait pas à accroître les problèmes de développement chez les enfants. Selon l'étude, le simple fait de ne plus vivre dans la pauvreté ne constituait pas un facteur suffisant pour améliorer le développement des enfants sauf si ce changement s'accompagnait d'une importante amélioration du niveau de vie. Selon l'étude, il apparaît que dans les familles non immigrantes qui étaient pauvres durant les deux cycles, l'obtention de petits gains de revenu a, en fait, accru les problèmes de comportements chez les enfants. C'est grâce à l'obtention d'un nouvel emploi et à la diminution de la dépendance à l'endroit de l'aide sociale que l'on constate une augmentation importante du revenu chez les familles non immigrantes qui vivaient en permanence dans la pauvreté. Soulignons toutefois que l'on a constaté chez les familles immigrantes qui vivaient en permanence dans la pauvreté qu'une augmentation importante du revenu avait pour effet de réduire les problèmes de comportement chez les enfants. Enfin, les résultats de l'étude ont plutôt démontré l'existence d'une faible relation entre les changements au chapitre de la situation de pauvreté et les caractéristiques parentales. Les changements dans la situation économique des familles non immigrantes n'exerçaient pas une influence aussi importante sur les comportements des enfants que les changements des caractéristiques parentales, même si ces différences n'étaient pas souvent notables. Néanmoins, chez les familles immigrantes, les changements de la situation économique étaient parfois plus importants que ceux des caractéristiques parentales.

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Foreword

The National Longitudinal Survey of Children and Youth (NLSCY) is a unique Canadian survey designed to follow a representative sample of children from birth to early adulthood. It is conducted in partnership by Human Resources Development Canada (HRDC) and Statistics Canada. Statistics Canada is responsible for data collection, while HRDC, the major funder, directs and disseminates research. Data collection began in 1994 and continues at two-year intervals.

The survey for the first time provides a single source of data for the examination of child development in context, including the diverse life paths of normal development. The survey and the research program were developed to support evidence-based policy, using a human development view of the early decades of life. This research paper is part of an ongoing series of papers emanating from a program of research that examines NLSCY data collected in the first two cycles (1994, 1996) of the survey.

1. Introduction

In most western countries divorce rates have risen steadily since World War II. Although there is some evidence of a leveling-off of the prevalence of divorce in the past decade, most experts suggest that approximately 40% of all marriages end in divorce (Bumpass et al., 1990; Hernandez, 1993; Martin & Bumpass, 1989). The rate of separation has been most extensively studied in the US, although available reports suggest comparable, if slightly lower, rates of separation in other western countries. Marcil-Gratton (1998) provides a helpful summary of this information in the particular context of Canada as well as specific findings from the NLSCY. Among the most obvious changes influencing marriages and families in Canada are the high rate of separation, the number of births to non-married couples and single-women, and the increasing number of families headed by cohabiting (rather than married) couples.

Because of the large and growing number of children who will live in a single-parent family, a considerable effort has been directed into understanding how this family form may shape children's development (Hetherington, 1999; see Lipman, Boyle, Dooley, & Offord, 1998 for a report from the NLSCY). It is important to note, however, that because most divorced individuals will remarry, and many of these remarriages will involve children, a large and growing number of children will also spend part of their childhood years in a stepfamily (see Cherlin & Furstenberg, 1994; Furstenberg & Spanier, 1987). Equally importantly, because the rate of divorce in second marriages is higher than first marriages (Clarke & Wilson, 1994), the picture that emerges from available sociological and demographic data is one of a *series* of marital transitions experienced by adults and children. Given the marked frequency of marital and family transitions, it is natural that policy makers, health professionals, and the general public raise questions about the implications of the changing family patterns for children's and adult's well-being.

Not surprisingly, then, the consequences of family change through marital separation¹ and re-partnering on children's psychological adjustment have been widely discussed and debated in the

¹ We refer to family (type) change or family transition as any change brought on by a separation or re-partnering of the residential parents. In addition, throughout this report we refer to marital separation. However, a sizeable minority of partnerships are cohabiting (non-marital) relationships, and this is particularly so in stepfamilies. Furthermore, we adopt the convention of using parental separation as the index variable rather than the legal divorce.

social sciences literature and the popular press. Recent reviews of the research literature (e.g., Hetherington, Bridges, & Insabella, 1998) highlight the very robust finding of higher mean levels of a wide variety of adjustment difficulties in children in stepfamilies and single-parent families, compared with children in "intact" or non-divorced families. Furthermore, these adjustment differences exist not only in the short-term, but may also persist into adulthood to influence subsequent generations of children (Kiernan & Hobcraft, 1997; Kiernan & Mueller, 1998; O'Connor et al., 1999b; Rodgers & Prior, 1998; see also, Aquilino, 1996; Webster et al., 1995). However, despite the wide-spread research attention directed toward this issue to date, basic questions remain about the causes and consequences of these changes on children and adults. Most importantly, we still know relatively little about why some children appear to be comparably resilient to stress that accompanies family upheaval, whereas others suffer serious difficulties.

The observation that there are "winners, losers, and survivors" (Hetherington, 1989) following family transitions led investigators to adopt a risk and resilience perspective (Hetherington, 1999). This perspective is concerned not so much with assessing mean differences between diverse family types, but instead on elucidating the risk and protective mechanisms explaining individual differences (i.e., variation) among children in their adjustment associated with family transitions.

1.1 The aims of the current research

The current research had several aims. The first, most general aim was to assess the causes and consequences of family changes for children in Canada. Much of what we know about the frequency and sequelae of family type change on child outcomes is based on research findings from the US and, to a lesser extent, the UK (Amato, 1996; Amato & Rogers, 1997; Brown & Booth, 1996; O'Connor et al., 1999b; Office of National Statistics, 1997; Rodgers & Prior, 1998; Schoen & Weinick, 1993; Thompson, 1994). We do not know whether the findings obtained in US and UK samples (and the implications of those findings for policy and practice) can be generalized to Canadian families. The large and representative nature of the sampling strategy is particularly unique in this research field, and will distinguish this study among the better extant projects assessing the connection between family and marital transitions and children's well-being.

A second, more specific aim was to identify the risk and protective factors that explain why some children have difficulty adjusting to family transitions but others appear unscathed. As noted above, although we know that there are significant and meaningful mean level differences in children's behavioural difficulties according to family type membership, researchers have been less successful in explaining *why* there is such great variation in children's adjustment. Moreover, there is even debate concerning whether the risk for adjustment difficulties arises from the family type *per se* (e.g., see Cherlin et al., 1991; Forehand et al., 1997). It may be, for example, that the causal risk factors pre-dated the divorce (e.g., in the form of marital conflict, Amato & Rogers, 1997; Davies & Cummings, 1994) or pre-dated the current family formation (e.g., in the form of the number of previous relationship transitions and parental psychopathology, Capaldi & Patterson, 1991; Dunn et al., 1998; O'Connor et al., 1998). There is even suggestive evidence that the connection between parental divorce and child adjustment may be partly genetically mediated (O'Connor et al., 2000). The longitudinal design of this study is therefore essential because it allows us to study changes in child adjustment following a (further) parental separation and family re-organization. We are therefore able to discern to what extent *changes* in family re-organization predict *changes* in children's well-being.

1.2 Conceptual and methodological considerations in research on family influences

Identifying the risk and protective processes that explain children's adjustment in diverse family types is complicated for several different reasons. We highlight the particular issues that are especially relevant for this project.

The first consideration is the definition of family "type". Defining family type is a surprisingly complex task. Numerous definitions of family type have been proposed. Most often the definitions are developed for very specific purposes or, more often, because of the particular and often idiosyncratic sample of families included in a study. For example, for census purposes, a stepfamily is often defined simply in terms of a family in which there is at least one dependent child from a previous relationship from one or both partners. This definition is not satisfactory for our purposes, however, because psychological research indicates that risk factors are far less common in "simple" stepfamilies than in "complex" stepfamilies (Hetherington et al., 1999).

Accordingly, in this report, we distinguish between different stepfamily forms (see definitions below).

The second conceptual and methodological consideration in the study of family transitions and child adjustment is the covariation among risk processes. That is, although there is now support for several key risk and protective variables (Amato & Keith, 1991; Hetherington et al., 1998), it is clear that there is a substantial overlap among the risks involved. Thus, family type and separation likely act as a proxy for multiple kinds of risks, from disrupted parenting to community norms of family life. Furthermore, even within the family there are multiple and overlapping risks, such as parent-child conflict, sibling conflict, marital conflict and socio-economic adversity (Hetherington & Clingempeel, 1992). Progress in understanding the processes distinguishing resilient from stress-affected children will occur to the extent that we are able to go beyond identification of a risk indicator to determination of specific risk mechanisms indexed by the indicator (Rutter, 1994). Only by this means can rational decisions be taken on "target" areas for interventions (e.g., how to support families experiencing a divorce or remarriage). Multivariate analyses may help determine which risk factor is "driving" the risk process, but this approach does have limitations. A better strategy, and one available to us in this study, is to focus on within-individual change over time.

A third conceptual and methodological consideration in the study of risk mechanisms concerns the distinction between between-family and within-family differences in child outcomes. This distinction has been highlighted in recent research in developmental psychology and behavioural genetics. On the one hand, we can explain variation in children's adjustment according to the characteristics of the family they live in. That is, we can examine why children in different families have disparate patterns of adjustment, or between-family differences in children's outcomes. In other words, by virtue of being in a particular family we might assume that children would "share" certain experiences - including family type and parental separation - as well as the **effects** of those experiences. Accordingly, children in the same family might be more similar to one another than children in different families (of course, sibling similarity may be explained by other factors as well, notably genetics).

On the other hand, we also know that children in the same family differ from one another on the range of important outcome variables (Plomin & Daniels, 1987). Because risk factors that

operate at the family level (or between-family) may not explain why children in the same family differ from one another, it is important to consider the complementary view that risk factors may also operate at the individual child level. We refer to individual child-level effects as within-family variability. Research findings highlighting within-family variation or sibling differences in children's adjustment are important for several reasons. First, they force a re-consideration of the assumption that many psychosocial risks operate in a family-wide basis and therefore affect siblings similarly. Second, these findings open up new avenues to the study of resilience because there is no certainty that risk processes explaining between-family variation in children's adjustment are the same as those that explain within-family variation.

Almost without exception, prior research on children's adjustment to divorce and re-partnering was based on designs that assess one child per family. This is also true of the research on risk and resilience in children more generally, involving risks such as poverty (e.g., McLoyd, 1990), marital conflict (Jenkins & Smith, 1990), poor mental health of parents (Rutter & Quinton, 1984) and cumulative risk (Jenkins & Keating, 1998). Our knowledge of the factors that underlie between-family and within-family differences in child outcome has been obfuscated by the one-child-per-family research design. Unfortunately, when only one child per family is assessed, it is impossible to explain the extent to which variation in child adjustment can be explained by risks operating at a family-wide level (as separation and family type is presumed to operate), the individual child level, or an interaction between the two.

A novel feature of the current study is to assess whether children in the **same** family are differently affected by membership in a "non-traditional" family. Moreover, the longitudinal angle provides a unique opportunity to identify within-family risk and protective processes, and to distinguish those risk factors that operate at the family level from those risks that operate at the individual child level. Specifically, we examine to what extent siblings are differentially affected by their parents' separation, and what factors explain these within-family variations. Findings from this novel analytic approach would provide additional insight into the origins of children's resilience to adversity and, in addition, offer new directions for clinical and policy work with families in transition.

The hypotheses to be tested as well as the exploratory analyses are described in detail in each of the three results sections. The following section sets out the research strategy used to answer the questions raised in the introduction.

2. Methods

2.1 Sample

The sample for these analyses is based on the families seen at Cycle 1 and Cycle 2 of the National Longitudinal Survey of Children and Youth (NLSCY). Across all analyses there were only three exclusion criteria (which involved very few cases). We excluded children who were not living with at least one biological, step or adoptive parent. In addition, we excluded those children for whom the person most knowledgeable about the child and who provided the information (PMK) was neither a biological, step- nor adoptive parent. Third, we excluded those children living with two adoptive parents. The first criterion was established because of our uncertainty about the nature of the families involved; in addition, combining "looked after" children or children in alternative care arrangements would compromise comparability with other studies of family type. The second exclusion criterion was based on our concerns about the reliability of respondent reports and because virtually all previous family studies included data from a biological, adoptive or step-parent. The third criterion was established in order to assure comparability with other studies connecting family type and child well-being. The last requirement resulted in a small, but non-trivial number of families being excluded. There were 137 adoptive families with data at Cycle 1 and Cycle 2 (we inferred that children living with a biological and adoptive parent had been adopted by the stepparent).

The central analyses make use of the longitudinal data for children on whom behavioural data are available. However, there were preliminary analytic questions that required the use of larger subsets of the data. For example, before assessing the effects of parental separation and family transitions, it was first necessary to document the frequency of family change. Thus, for analyses of the rates of change in family type, we included data on all families seen at Cycle 1 and Cycle 2. We wanted to estimate the rate and predictors of change on the largest number of families available ($N=8,139$ families).

In contrast, for analyses of the effects of family type and transitions on children's behavioural development, we had to exclude children who did not have behavioural outcome data. For parent report, this meant excluding children younger than 4 years or older than 9 years at Cycle 1. Although there were self-report data available on children over 11 years of age, there are

considerable differences in parent and child reports of psychopathology, and it was decided that we could not "equate" the two in our analyses. Thus, the N for longitudinal analyses involving parent report of behavioural adjustment was 6,095 children. For those analyses on the effects of separation from Cycle 1 to Cycle 2 we had to exclude those families headed by one parent at Cycle 1. This resulted in a maximum N of 5,234 children (4,175 families).

For those analyses based on teacher data the sample size dropped to 3,027 children. Finally, for analyses based on the effects of separation, i.e., when one-parent families at Cycle 1 were eliminated, the sample size was 2,598 children (2,129 families).

The above discussion makes clear that the questions asked required different samples. The drop in sample size, which was in many cases substantial, was a result of issues related to the design of the study rather than to missing data as such. Chief among the design considerations was the decision not to include parent report data on children over 11 years of age. This resulted in a loss of important information. The absence of teacher report data for children not yet in school was, of course, unavoidable. In fact, with the exception of the teacher report data, it should be noted that the rate of "truly" missing data was minimal, typically less than 5% for most variables (importantly, the rate of missing data for parent reports of child outcomes used in this report was less than 5%). The only exception to this was teacher data, for which the rate of missing data was substantial at Cycle 1 (a rationale for this, and the greater rate of missing teacher data at Cycle 1 compared with Cycle 2, is given in the published information about the NLSCY design).

However, despite the different sample sizes, the rate of family type (see definitions below) was essentially invariant in each of the central subsamples (i.e., the largest sample of families available at both cycles; the subsample on which parent reported outcomes were available at both cycles; the subsample on which teacher reported outcomes were available at both cycles). That is, when single-parent families were included, the rates of family type were: biological families, 76%; simple stepfamilies, 8%; complex/stepmother stepfamilies, 2%; single-parent families, 14% (the rationale for this categorization is given below). In addition, across the parallel subsamples noted above, the overall rate of parental separation among 2-parent families at Cycle 1 was comparable, slightly less than 5%. Furthermore, the average number of children per family, approximately 1.2, was constant across family type and subsamples. These findings

indicate that the subsamples of families were very similar in key respects. This is to be expected because, which the exception of the teacher datafiles, exclusion criteria were based simply on a child's age (and both the oldest and youngest were excluded).

Given the relatively low rate of missing data (with the exception of the teacher data), we used a mean substitution method of replacing missing values for explanatory and outcome variables. For those explanatory variables with greater than approximately 10% missing data (e.g., marital satisfaction) we also defined a dummy variable scored '1' for missing (i.e., those cases for whom a series mean was substituted were scored '1') and '0' for not missing. This dummy variable, when entered into a regression analysis alongside the new explanatory variable (i.e., the one with missing values assigned to the series mean), provides information on whether or not the cases assigned missing values differ from those without missing values on the outcome variable. This procedure also adjusts the estimate of the explanatory variable so that it is not biased by the missing values assigned. This is a standard method of dealing with missing data in developmental research.

2.2 Measures

Definition of family type. We made the following definitions of family type based on prior research and empirical considerations:

- a) Biological families² are those in which all children are biologically related to both parents;
- b) Stepfather families are those in which at least one child is biologically unrelated to the father, but all children are related to the mother;
- c) Stepmother/Complex stepfamilies are those in which at least one child is biologically unrelated to the mother, but all children are related to the father (stepmother); or those families in which at least one child is biologically unrelated to the father and at least one child is biologically unrelated to the mother (Complex stepfamily);
- d) Single-parent families are families headed by a non-married, non-cohabiting adult.

² Henceforth, we use the term "biological families" simply to denote that in these two-parent families all members are biologically related to one another. We prefer this term to the somewhat more (or at least equally) awkward terms such as "intact", "nuclear", "non-divorced", and "non-stepfamily" families.

It is important to note that two forms of stepfamilies defined above may also include children who are biologically related to both parents (i.e., a child of the new union). The above definitions also do not consider whether or not the partners are married or cohabiting, or have been previously married. These factors are considered separately from family type in our analyses. We initially distinguished between stepmother stepfamilies and complex stepfamilies, and among all stepfamilies according to whether or not there was also a child of the current union living in the home. However, with this more specific categorization there were too few cases to provide reasonable estimates for all analyses. The relative rarity of "atypical" forms of stepfamilies, i.e., stepfamilies other than stepfather stepfamilies, has been noted in investigations of US and UK community samples (Haskey, 1994; O'Connor et al., 1999a; Reiss et al., 1994).

For analyses of the Cycle 1 and Cycle 2 outcomes and the change between Cycles, we analyze reports of child adjustment separately for parent and teacher ratings. The models predicting parent reports (cross-sectional and longitudinal) suffer from methodological problems arising from rater bias. That is, information on the predictor and outcome variables were provided by the same respondent. However, this is not the case for predicting teacher reports of behavioural/emotional problems. Using a cross-informant design (i.e., predicting teacher-rated outcome from parent-reported risk factors) is critical if we are to be certain that shared method variance is not inflating the connection between risk and adjustment. The problems on relying on a single reporter for all information are serious and well-known. Therefore, we were especially interested in the degree to which the findings for teacher-reported outcome replicate findings for the parent-reported outcome.

Violence in the home. The PMK was asked whether and how often the child had witnessed violence between two adults in the home (APRCQ28). "How often does NAME see adults or teenagers in your house physically fighting, hitting or otherwise trying to hurt others. This is rated on a 4 point scale from often (1) to never (4); thus, higher scores index *less* violence. Importantly, this is measured separately for each child in the family.

Socioeconomic status. This variable was calculated by Statistics Canada and was based on the education and occupation of the PMK and spouse (if relevant) and household income (AINHD08). Occupation was coded using the Pineo socio-economic classification.

Ineffective and positive parenting. In the NLSCY the PMK was asked to rate him/herself on a five point scale on a range of parenting variables describing affection in the parent child relationship, positive interaction, punishment and hostility. This was factor analyzed and three factors emerged: hostile/ineffective (APRCS04), consistency (APRCS05) and positive involvement (APRCS03). The hostile/ineffective (hereafter referred to as "ineffective") scale was made up of the following items: annoyance, anger, disapproval, lack of praise, difficulties managing the child, parental moodiness affecting punishment and ineffective punishment. Internal consistency of this scale was good (Cronbach's $\alpha=.71$). The positive involvement scale was made up of: praise of the child, talk or play focusing attention on the child for 5 minutes or more, laughing with the child, doing something special together that the child enjoys, playing sports or hobbies together. Internal consistency for this scale was adequate (Cronbach's $\alpha=.81$). The parental consistency scale was not used in the analyses presented in this report.

Aggression and emotional problems reported by PMK and teacher. For the PMK assessment of aggression at Cycle 1 and Cycle 2, we used the conduct disorder and physical aggression subscale based on factor analyses carried out by Statistics Canada (ABECS09, BBECS09). For the PMK assessment of emotional problems at Cycle 1 and Cycle 2 we used the emotional disorder-anxiety (ABECS08, BBECS08). For the teacher assessment of aggression at Cycle 1 and Cycle 2 we used the conduct disorder and physical aggression subscale (AETCS28A, BETCS28A). For the teacher assessment of emotional problems at Cycle 1 and Cycle 2 we used the emotional disorder-anxiety (AETCS28E, BETCS28E).

Children's aggressiveness and emotional problems were the central outcome variables used in analyses. They are the psychopathology scales most often included in research on children's adjustment to family transitions. The results for the remaining two psychopathology scales, hyperactivity and indirect aggression, did not offer new insights into the risk and protective factors for children's adjustment. They were therefore dropped from our central analyses.

Both the aggression and emotional symptom scales were skewed, with relatively few cases at the high extreme. After considering several alternatives to transforming the raw data, we collapsed the top 5% of scores. This is analogous to defining a "threshold" point for severe disturbance, which in the current case was defined by the 95th percentile. A consequence of this procedure is

that we are not accounting for individual differences in the extreme high end of the distribution. This procedure was performed for both parent and teacher reports. Alternative approaches were considered (log or the square root of the raw score) but were no more effective in producing a normally distributed variable.

Relationship with friends and siblings at Cycle 1. The PMK was asked about the quality of the child's relationship with their friends and their sibling at Cycle 1. The wording of the questions were as follows: "During the past 6 months how well has NAME gotten along with other kids, such as friends or classmates -excluding brothers or sisters?" (ARLCQ06). "During the past six months how well has he/she gotten along with his/her brother (s)/sister (s)?" (ARLCQ09). Each of these questions was rated on a five point scale from very well, no problems, to not well at all, constant problems. Higher scores thus index more problems in the relationship. These items were adapted from the Ontario Health Study.

Parental depression Cycle 1. This was measured using a modified version of the CES-D (Radloff, 1977). The PMK was asked about depressive symptoms including mood, sleeping, crying, depressive cognitions and poor appetite (ADPPS01). There are 12 items in the scale. The range is from 0-36. The internal consistency of the scale was good (Crobach's $\alpha=.82$).

Family functioning Cycle 1. This scale was developed at Chedoke McMaster (AFNHS01). It measures various aspects of family functioning such as problem solving, communications, roles, affective involvement, affective responsiveness and behaviour control. Values ranged from 0-36.

Urban setting Cycle 1. Interviewers made a coding of the size of the size of community in which the family lived (AGEHD01). Urban codes ranged from (1) which was an urban area with a population of over 500,000 people to (5) which was an urban area with a population of less than 15,000. There was also a code (6) for rural area. We created a dummy variable of urban/rural in which all urban areas were categorized together (codes 1-5) and contrasted to rural.

Previous relationship transitions. Data from the custody files was used to create a score for the number of previous marital or live-in relationships experienced by the mother and father prior to the current union.

Cohabitation status. In addition to distinguishing whether the couple heading the family was married or cohabiting, we also included information on whether the couple cohabited before marriage. The latter information was available from the custody datafiles.

Family-level and child-level factors. For empirical and conceptual purposes the above variables were categorized as either family level or child level influences. We made this distinction because of our interest in describing both between-family and within-family variation. Of course, this distinction is required in multilevel model analyses. Empirically, the distinction between the two kinds of variables is unambiguous. Those variables for which siblings **necessarily** receive the same score (i.e., by virtue of living in the same home they must receive the same score) are considered family-level; variables for which siblings could receive different scores were considered child-level variables. We make clear in our analyses that the “level” at which variables are measured may not equate with the kinds of *effects* they may have on children. For example, we examine below the question of whether variables measured at the family level have effects only at the family level.

Family-level variables. Several risk factors were measured at the family level, that is, siblings within the same family received the same score for that measure. Specific risks included socio-economic status (variables connected with socio-economic status, such as parental income and education), parental depression, urban setting, family size. These risks indexed psychological, social and economic risk conditions. Unless otherwise noted, these risks were included as continuous variables in regression, repeated measures, and multilevel modeling analyses.

An additional set of variables included in the model indexed developmental risks tied to the parent(s). In this list of factors was the number of previous relationship transitions, the couple's marriage/cohabitation status, and whether or not the parents cohabited prior to marriage. These risks are particularly interesting because, in the vast majority of cases, they precede the current family type or even the child's birth. Empirically, these risks are defined as family-level risks because children in the same family would be assigned the same score. However, they are conceptually very different from the set of family-level risks identified in the previous paragraph.

Child-level variables. Several risk factors were measured at the child level, that is, siblings within the same family had (potentially) unique scores. Child-level risks were included in the

models if there was evidence for its association with children's behavioural adjustment. Specific child-level risks included age, sex, parenting quality, friendship quality and violence in the home. Although there is evidence that children receive similar levels of parenting, suggesting that it might operate in a family-wide manner in some cases, there is also evidence that child-specific or differential parenting underlies within-family differences in child behavioural disturbance (Reiss et al., 1995). Accordingly, we used the child-specific measure of parent-child relationship quality.

2.3 An overview of the data analytic approach

Prior studies of the risk and *protective* factors for children's psychopathology typically include only one child per family. As a result, the effects attributable to family-level factors (e.g., parental psychopathology), individual child-level factors (e.g., age, sex), and the interaction between the two are completely confounded. A novel feature of this study was the use of multilevel modeling, an analytic approach that capitalizes on the nested or hierarchical structure of family data. This approach partitions variation attributable to each "level" in the data structure. That is, we were able to distinguish between risk and protective factors that operate at the family level (which explain why families differ from one another, or *between-family* variation) from those that operate at the individual child level and explain why individual children differ from one another (which we term *within-family* variation).

Multilevel modeling (Bryk & Raudenbush, 1992; Goldstein, 1995) is designed for hierarchically organized data at a potentially infinite number of levels, such as children within classrooms within schools, or, as in the present case, children within families. Three features of the multilevel model results are highlighted. First, we present the fixed effects associated with the predictor variables. These estimates and standard errors are interpreted as in a regression model; an estimate that is approximately twice its standard error has a significant ($p < .05$) association with child psychopathology.

The novel feature of multilevel modeling, the partitioning of variance into each "level" of the data, is also provided. Error variance is decomposed into family-level ("between-family") and individual child-level ("within-family") variability. These are referred to as "random effects". Estimates for the fixed and random effects are simultaneously calculated using a maximum

likelihood procedure, the value of which is reported. It is important to note that the estimates included in the random effects part of the tables are not interpreted in the same way as the estimates for the fixed effects. The estimates in the random effects section are estimates of **variance** (with associated standard errors) rather than traditional regression coefficients.

In addition to providing potentially new insights into the risk and protective factors associated with psychopathology following family transitions, the use of multilevel modeling handles the analytic problems arising from correlated errors when multiple children from the same family are included in analyses. Analyzing these data using conventional statistical tools and programs would result in biased standard errors and potentially misleading findings.

Throughout the results section we consider both statistical significance of the findings as well as the magnitude of the findings, or effect size. Effect size, d , was defined by Cohen (1968) as the mean difference between groups divided by the pooled standard deviation. As a general rule, effect size values of .2, .5, and .8 indicate small, medium, and large effects, respectively. Given the large sample size for most analyses (although the number of complex/stepmother families is relatively small) findings of a trivial effect could nonetheless be statistically significant.

Analyses using the multilevel method are based on weighted data using the weighting procedure in the most recent version of MLwiN (beta version 1.10.0001; Goldstein et al., 1998; Rasbash, Browne, Healy, Cameron, & Charlton, 1999). In this case, because the weights were assigned to individual children in the NLSCY, the weighting procedure in MLwiN analyzed the data with child-level weights (referred to in this case as Level 1). There was no comparable set of weights for the family-level analyses, notably analyses on the rates of family type change. Longitudinal weights are used in all analyses involving (only) the longitudinal sample. The cross-sectional (Cycle 1) weights were used in the final set of cross-sectional analyses on the Cycle 1 data.

3. Results

3.1 Ordering and presentation of the results

The key question about the effects of separation on children's well-being in the proposed research had three separate components. First, to what extent was there a connection between a **change** in children's adjustment difficulties and a (further) parental separation. Second, were children even in the same family affected differently by parental separation. Third, what risk and protective factors explained changes in children's adjustment associated with a parental separation. After first describing the frequency of separation and a context for understanding the risks associated with separation for the 2-year period between assessments, we present analyses that directly address these questions.

Understanding the nature of change in children's adjustment associated with parental separation requires an understanding of the initial level of disturbance prior to the separation. That is, it is important to document the level of disturbance where children "started from" and the factors that led up to that level of disturbance. This is necessary on both conceptual and empirical grounds. In the first instance, as our review of research indicated, there continues to be debate about the extent to which the parental separation is causally linked to children's adjustment problems. What is needed is evidence that separation is associated with a subsequent increase in adjustment problems in children *controlling for the initial level of disturbance*. For example, it may be that the risks that accompany and, more to the point, precede separation may be the important risks for children's behavioural and emotional problems.

In addition, it is important to know about initial levels of disturbance when interpreting change because the rate of change exhibited by children over this 2-year period may be related to the initial starting point. In longitudinal analysis, this is known as a correlation between level (mean level or intercept) and slope (the rate of change). It may also be that serious risk factors for psychopathology (parenting, family type, parental psychopathology) have already exerted their impact vis-à-vis children's adjustment at Cycle 1. Consequently, statistically controlling for initial level of disturbance would therefore also control for the effect of risks on initial (Cycle 1) level of problems. Given that both the outcomes of interest and the psychosocial risk factors of interest are very stable over this short time period (in the current sample, stability of both

aggression and emotional problems was approximately $r = .5$), we might expect comparatively little predictable or meaningful change. Accordingly, after a detailed analysis of the longitudinal change data, we then concentrate on the predictors of the "starting points", that is the adjustment at Cycle 1.

3.2 Rates and predictors of family change in NLSCY

3.2.1 What kinds of family type changes are observed across this 2-year period?

A first step in understanding the basis of children's maladjustment and resilience in response to family transitions was to identify the kinds of family changes that occurred between Cycle 1 and Cycle 2. In particular, not only did we need to consider what kind of family the child resided in at Cycle 1, but also what kind of family she/he ended up in at Cycle 2. The patterns of family type change occurring between the two cycles were assessed by cross-tabulating the 4 family type categories (defined above) at Cycle 1 with the Cycle 2 categories. We conducted this analysis primarily for descriptive purposes. Results of this cross-tabulation are displayed in Table 1.

Table 1: **The Rates and Types of Family Change from Cycle 1 to Cycle 2 in NLSCY**

Cycle 1	Cycle 2				Total	% Stability
	Biological	Stepfather	Stepmother/ Complex	Single		
Biological	5,888	16	12	245	6,161	96%
Stepfather	25	541	8	95	669	81%
Stepmother/ Complex	8	10	102	14	134	76%
Single Parent	45	180	32	918	1,175	78%
					8,139	

Note: See text for definitions of family types. The numbers of families in the same family type at both cycles are given in bold text.

Several findings deserve special consideration. First, approximately three-fourths of families were classified as Biological families and 15% were single-parent families. Among the remaining stepfamilies, most were classified as stepfather families (further details on the kinds of families that are included in the NLSCY are given in Marcil-Gratton, 1998). The second noteworthy finding in Table 1 is that the rate of **any** change (i.e., off-diagonal entries) varied considerably according to Cycle 1 family type. Most (96%) Biological families remained Biological families over the study period, but the rate of change was substantially higher in

stepfamilies and single-parent families. Third, most of the change associated with family type was a separation for a 2-parent family and a re-partnering for a single-parent family. That is, there was relatively little change from one form of 2-parent family to a **different** 2-parent family type, i.e., a change that required a separation and re-partnering in the relatively brief study period. Consequently, although there were many kinds of family changes, there was only sufficient power to analyze the predictors of separation among two-parent families and the predictors of relationship formation (into any two-parent family) among single-parents. Specifically, the rates of separation³ (see Table 1) in the 2-year period between cycles were 4% in biological families, 14% in stepfather families and 10% in stepmother/complex stepfamilies.

3.2.2 What predicts separation?

The sharp divergence of rates of separation across different constellations suggest that the experience of a separation is not an event that is randomly distributed across Canadian families. This finding alerts us to the possibility that the risk factors that predispose to family disruption (i.e., between cycles) may also **directly** compromise children's well-being. We therefore carried out analyses to identify what risk factors at Cycle 1 predicted marital separation in the ensuing 2-year period. We used logistic regression analyses to answer this question because the outcome variable, separation or not, was dichotomous. Variables suggested from previous studies were included as predictors. This analysis was carried out in order to provide a context for understanding the risks associated with family separation and to inform our longitudinal analyses of changes in child behavioural and emotional problems. For additional information on environmental risks and family breakdown see Marcil-Gratton (1998).

The findings are striking and reinforce the conceptual and methodological difficulties raised in the introduction. Many of the key risks for separation derive from the adults involved and the life history of the individuals (Amato, 1996; Axinn & Thornton, 1992; Bumpass et al., 1991). The strongest effects were associated with elevated rates of depression ($p < .01$), greater number of previous relationships ($p < .05$), and lower educational status ($p < .001$). Social and community factors were also implicated. The strongest variables of this sort were lower income ($p < .0001$) and urban setting ($p < .01$). Finally, features of the couple were associated with the likelihood of

³ A very small minority of families experienced multiple marital transitions between cycles, such as a separation followed by a re-partnering. These families were included in the separation group.

separation. Most important among these variables appeared to be whether or not the couple was cohabiting rather than married ($p < .0001$). The above associations are based on the independent effects of each predictor controlling for other individual, family and social and community level variables. Not surprisingly, the bivariate connections between risks and the likelihood of separation were substantially larger in most cases. These findings reveal the complex covariation between risks for family disruption and child maladjustment. In addition, they also raise a number of both basic and policy-related questions about the sources of risk for separation across multiple levels of the family's "ecology".

3.2.3 Summary

1. Family type change (that is, a household re-organization following a marital separation or re-partnering) is a common experience for children in Canada. In a relatively short time-span of 2 years, approximately 5% of families experienced an upheaval.
2. Not all families are equally likely to experience a family re-organization. The rate of any change was 5% in biological families but approached 25% in certain kinds of stepfamilies.
3. Whether or not a couple with children decides to separate cannot be attributed to a simple process. Individual, family and socio-cultural factors were all involved in increasing the likelihood of a separation during the 2-year study period.
4. Many of the risk factors for marital separation (e.g., stepfamily status, socio-economic deprivation, parental psychopathology) have also been associated with children's behavioural and emotional problems. Therefore, it is possible that children's adjustment difficulties may not be associated with separation as such, but rather with the conditions that promote family upheaval.

3.3 Longitudinal change in children's adjustment associated with family break-up

The findings reported in the first section, which highlight both the frequency and risks of parental separation between Cycle 1 and Cycle 2, provide an important backdrop to the longitudinal analyses of change in children's adjustment following parental separation. In this section we report the effect of a (further) separation on children's adjustment and the factors that explain

why some children are seriously affected by a separation while others appear relatively unaffected. In addition, we explore the novel question of whether children in the same family are differentially affected by their parents' separation.

3.3.1 Do adjustment differences pre-date parental separation?

Before reporting the "effects" of parental separation, we have to first consider what children's behaviour is like before they experience the separation. Previous studies have suggested that elevations in children's behavioural problems pre-date separation in those families that eventually divorced (Cherlin et al., 1991). Is this also the case in the NLSCY sample?

In order to examine this question we carried out two-way analyses of variance (ANOVA) with parent- and teacher-reported aggression and emotional problems at Cycle 1 as the outcome variables and family type and separation as the main effects. Finding an effect of separation *before the separation occurs* (i.e., at Cycle 1) would suggest that conflict was evident in these families at the time of Cycle 1 (Cherlin et al., 1991) causing the increase in child behavioural problems (Jenkins and Smith, 1990; Jenkins, in press). We also examined family type as a main effect in order to determine whether children who have already experienced a separation prior to Cycle 1 (children in stepfamilies) were showing more disturbance than children who had not experienced a previous separation. An interaction between family type and separation tells us that family conflict has a different effect on behaviour in step and non-step families, suggesting further that conflict may have a different meaning in step and non-step families.

Figure 1 displays the mean level of behavioural problems at Cycle 1 according to whether or not a separation occurred and family type for parent-reported emotional problems and aggression, respectively. Results for parent-reported emotional problems indicated a significant interaction between Separation and Family Type ($F(2, 7,308) = 3.21, p < .05$); neither main effect was significant when the interaction was included in the model. Analyses of the means (Figure 1) reveal that in Biological families, those children in families that were to separate were already exhibiting higher levels of adjustment problems. Interestingly, the opposite effect was found in the two types of stepfamily. Children in those families that were to separate were exhibiting *fewer* emotional problems compared with children in stepfamilies that remained together between Cycle 1 and Cycle 2. Perhaps children in stepfamilies greet parental conflict with less foreboding, for a whole range of reasons, than children in intact marriages.

Figure 1 Parent-Reported Emotional Problems at Cycle 1 According to Whether or Not a Separation Is Yet To Occur and Family Type

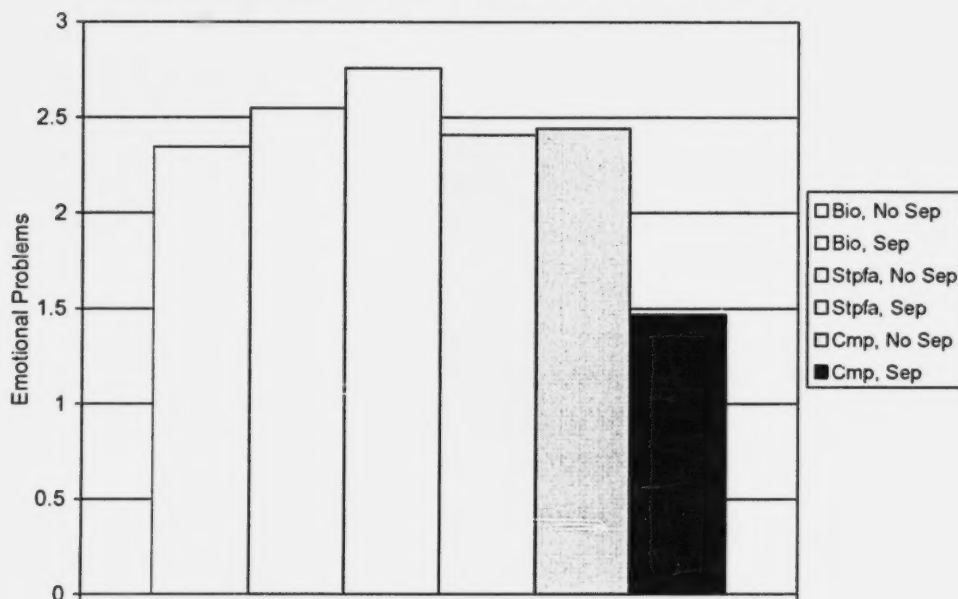
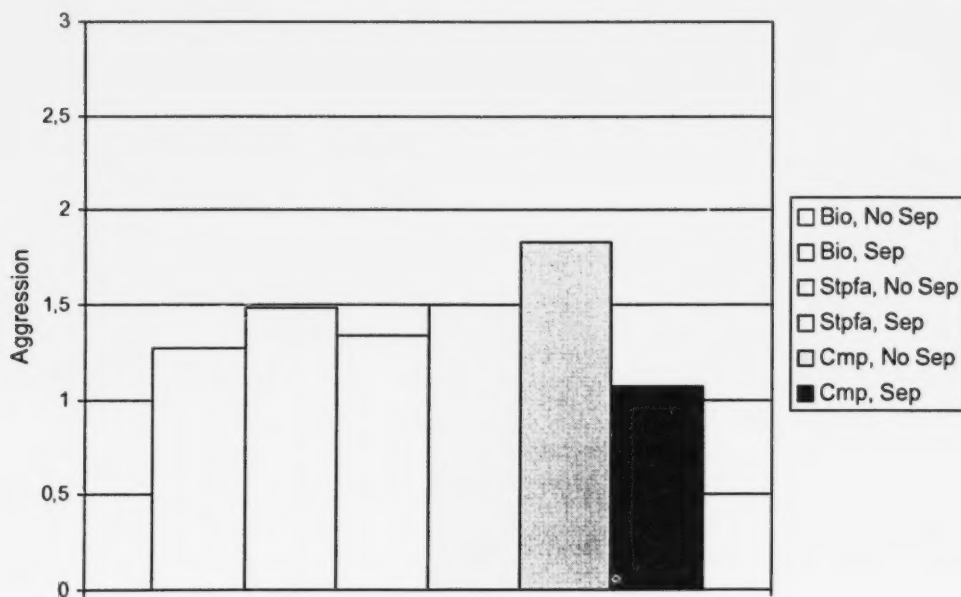


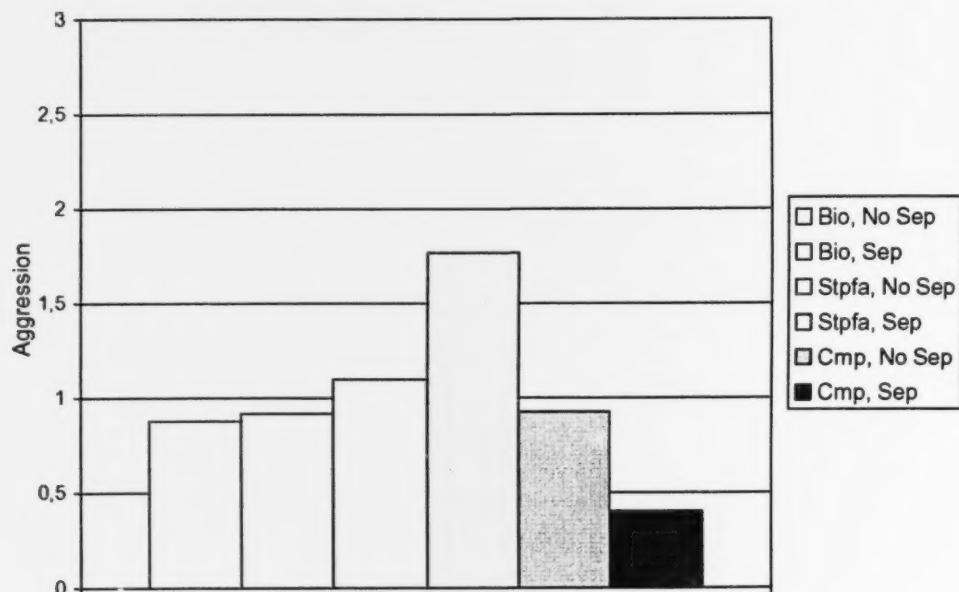
Figure 2 Parent-Reported Aggression at Cycle 1 According to Whether or Not a Separation Is Yet To Occur and Family Type



For parent-reported aggression there was a trend for separation to operate differently in different family types, but the interaction between family type and separation was not significant ($F(2,7308)=2.38, p=.09$); nor were there significant main effects of family type or separation.

Results for teacher-reported emotional problems indicated a significant main effect of family type ($F(2,3190)=8.48, p<.001$). Post hoc tests indicated significantly higher level of problems in children in stepfather families compared with children in biological families. The main effect of separation ($F(1,3190)=15.19, p<.001$) indicated that children whose parents were to separate (high conflict) were already exhibiting higher levels of emotional distress. Finally, there was a significant interaction between separation and family type ($F(2, 3,190)= 52.28, p<.001$). Post hoc comparisons revealed that the separation/no separation differences in emotional problems were marked in stepfamilies and relatively unnoticed in biological families.

Figure 3 Teacher-Reported Aggression at Cycle 1 According to Whether or Not a Separation Is Yet To Occur and Family Type



The findings for teacher-reported aggressive behaviour are shown in Figure 3. Post hoc tests of a family type main effect ($F(2,3190)=8.41, p<.001$) indicated significantly higher level of problems in children in stepfather families compared with children in biological families. There

was also a significant interaction between separation and family type ($F(2, 3190) = 3.53, p < .05$). Post hoc comparisons revealed that aggression was highest in 'later to separate' stepfather families. However, in complex/stepmother families the lowest level of aggression is seen in those families that then separate (high conflict complex/stepmother families). The contrast in complex/stepfather families should be treated cautiously because of the relatively small number of families in the separated and non-separated groups within the complex stepfamilies (n 's = 10 and 45, respectively).

In summary, three issues are important when considering the longitudinal analyses. The first is that children whose parents will later separate are already showing greater difficulties in their behaviour at Cycle 1, and that the magnitude and direction of this effect varied across family type and by adjustment dimension. Secondly, there is some evidence that children in stepfamilies are exhibiting more behavioural/emotional problems prior to the parental separation that takes place between Cycle 1 and Cycle 2. Finally, the interaction between family type and separation in some analyses suggested that the meaning of conflict between parents may be different in step and biological families.

3.3.2 Is parent separation associated with a change in children's adjustment difficulties?

Analyses to test the hypothesis that separation predicts a (further) increase in children's adjustment were based on the multilevel modeling analytic approach. This was used for all subsequent analyses in order to account for the correlated errors resulting from the inclusion of multiple children per household. We highlight the fixed effects (main effects and interactions) from multilevel model regressions in order to determine if a separation between cycles is associated with a further increase in adjustment problems in children, and to identify what risk and protective factors mediate or moderate this effect. Subsequently, we consider the "random effects" from the multilevel model analyses in order to determine the degree to which variation in response to separation is accounted for by family-wide or individual child-specific risks.

Regression analyses for detecting change in aggression and emotional problems were run separately. In each case we entered the Cycle 1 score of the same dimension (to account for stability) before entering separation or other predictor variables in successive models.

Parent-reported adjustment problems. For parent reports of emotional problems, separation predicted Cycle 2 problems even after controlling for stability of emotional problems (regression coefficient [standard error], .75 [.14]). That is, when children experienced a separation they showed an increase of .75 on the emotional problem scale (see Table 2, Model 2). In contrast to the effect for emotional problems, a separation between cycles was not associated with a further increase in aggression.

Teacher-reported adjustment problems. Teacher-reported emotional problems indicated that a separation between cycles was associated with a (further) increase in emotional problems in children. The effect was slightly larger than that found for parents. Specifically, a separation was associated with a 1 point increase in the emotional problems scale (regression coefficient [standard error], 1.0 [.24]). Consistent with parent reports, however, separation was not associated with a (further) increase in teacher-reported aggression.

Results reported above are consistent in noting an effect of separation on emotional problems, including depressed mood, withdrawal, worry and related symptoms. The fact that both teachers and parents detected an increase when a separation occurred is noteworthy because several authors have suggested that adjustment problems previously linked with parental separation may be entirely a result of pre-separation stresses. It is clear from these analyses that separation itself predicts an increase in emotional problems over a two-year period.

We focus on emotional problems for the remainder of this results section. As both teacher and parent reported changes in children's aggression were not found to be predicted by separation, these outcomes are not considered until the last section of results (section 3.4).

3.3.3 Analyses to examine mediating and moderating effects

The next set of analyses asks the question, how can we account for the increases in emotional problems that some children show following a separation?

Are children in biological families more adversely affected by parental separation than children in stepfamilies? The first issue that we examined was whether children in different family types responded differently to parental separation. To date, studies of the effects of parental separation and divorce have assessed the transition from 2 biological parents to a single-parent family. We

do not yet know whether children in stepfamilies would be less adversely affected by a parental separation than children in biological families. The hypothesis that children in biological families would be more adversely affected by parental separation than children in stepfamilies ensues from the following findings. First, children in stepfamilies are known to exhibit higher levels of adjustment problems (see the previous section). Because they are already exhibiting substantial difficulties, children in stepfamilies may be comparatively less adversely affected by a further stressor (e.g., there is a "ceiling effect"). Moreover, some authors have suggested that relationship dissolution in stepfamilies has more to do with conflict between step-relationships than between couples (Crosbie-Burnett, 1989; Vuchinich et al., 1991; White & Booth, 1985). Separation in stepfamilies might therefore be greeted with relief rather than distress by some children. Finally, there is the further issue that loss of a biological parent (an attachment figure) is presumed to be a more substantial risk for children than the loss of a stepparent (who may or may not be an attachment figure for the child).

We tested the hypothesis that family type would moderate the effect of separation on children's emotional problems using a multilevel model regression analysis. Separation and family type were entered as main effects followed by the family type X separation interactions. Although there was a consistent tendency for children in biological families to exhibit slightly more problematic behaviour following a separation than children in stepfamilies, the interaction between family type and separation did not reach significance in any of the models. Thus, children in biological families were not significantly more negatively affected by their parents' separation than children in step-families.

Does the presence of other risks help to explain why children are differentially vulnerable to the adverse effects of separation: mediation or moderation? We were interested in two questions related to the way in which risk factors, other than family type, operate together to increase problem behaviour in children. First, we examined whether the effects of separation were mediated or explained by another variable. For instance, perhaps separation only has a negative effect on children through parental depression. This would mean that parents who separate are more likely to be depressed and when the effect of depression is accounted for, there is no significant effect of separation. This is tested by examining the change in the coefficient for separation when hypothesized mediating variables are included in the model. Secondly, we

tested whether or not the effect of separation on children's emotional distress was moderated by other factors. Although the effects of separation were not moderated by family type, they could nonetheless be moderated by other risk or protective factors. As described above, a moderation effect is indicated if the interaction between separation and a hypothesized risk or protective variable is significant when both main effects are also included in the model.

The following variables were examined first for mediation (see Model 3, Tables 2 & 3) and secondly for moderation (Model 4, Tables 2 & 3): maternal depression, socio-economic status, exposure to household violence, previous relationships of mother, ineffective parenting, positive parenting, quality of friendships, and child sex and age. With regard to factors that moderate the effect of separation on children's emotional problems, we hypothesized, based on limited relevant prior research, that the effects of separation would be less for girls (than boys), children who experienced a positive/protective parent-child relationship, and children in families with relatively good resources (indexed by socio-economic status variables). We also hypothesized that the effects of separation on emotional distress would be lower for children whose mothers had already experienced multiple separations, reasoning that a separation may be less disruptive for mothers who had experienced separations before. We tested the significance of each interaction separately. If an interaction was significant when considered separately, it was retained for inclusion in the final model (an interaction would be significant in the final models in the tables only if it predicted a change in emotional problems even when the effects of the other interactions were covaried).

Table 2 presents the results from the regression model for parent-reported emotional problems. The parallel analysis for teacher-reported outcome is given in Table 3. For both parent and teacher reports, Model 1 presents the results of using Cycle 1 emotional problems to predict Cycle 2 emotional problems. This model demonstrates how stable emotional problems are over a two-year period. In Model 2, we added the separation main effect (as discussed previously). In Model 3, we added the hypothesized predictor variables.

The change in the regression coefficient of the separation variable from Model 2 to Model 3 provides an indication of the degree to which the effect of separation is accounted for by other co-occurring risks. If the regression coefficient for separation in Model 3 is much lower than the

regression coefficient for separation in Model 2, this would suggest a significant mediation effect. Model 3 also tells us the risk factors that predict increases in emotional problems in children. A significant prediction from child-level variable or family-level variable would indicate that a *change* in emotional problems between Cycle 1 and Cycle 2 was associated with that variable (and that this effect is net of the effect of the separation). Finally, Model 4 includes the interactions. An index of the improvement in fit for each model is given by the change in $-2 \times \text{loglikelihood}$ for the given change in degrees of freedom – (See Tables 2 and 3).

Table 2: Prediction of Change in Emotional Problems: Parent Report

	Model 1 beta(SE)		Model 2 beta(SE)		Model 3 beta(SE)		Model 4 beta(SE)	
Emotional problems, Cycle 1	.46	(.01)*	.46	(.01)*	.41	(.01)*	.41	(.01)*
Parental separation			.75	(.14)*	.68	(.14)*	.27	(.41)
Family-level risks								
Maternal depression					.04	(.01)*	.04	(.01)*
Socio-economic status					-.10	(.05)*	-.11	(.05)*
Violence in the home					.13	(.08)	.13	(.08)
Previous relationships, mother					.04	(.10)	.08	(.09)
Child-level risks								
Positive parenting					.04	(.01)*	.04	(.01)*
Ineffective parenting					.02	(.01)	.02	(.01)
Friendship quality					.14	(.04)*	.14	(.04)*
Male					-.10	(.05)	-.12	(.05)*
Age					.02	(.02)	.02	(.02)
Interactions								
Separation X socio-economic status							.44	(.20)*
Separation X maternal depression							-.03	(.02)
Separation X Previous relationships, mother							-.60	(.29)*
Separation X male							.55	(.24)*
Model fit								
-2*loglikelihood	22244		22215		22117		22101	

Note: Results are analyses from multilevel model regression. N=5,234 children. * $p < .05$.

Several findings stand out from the results presented in Tables 2 and 3. First, there was no suggestion from the data that a change in emotional disturbance could be accounted for (or mediated by) the pattern of co-occurring risks. This will be evident from the fact that the coefficient for separation changes very little between model 2 (when no mediating variables are included) and Model 3 (when all other predictor variables are included in the regression).

Importantly, it was not the case that the risk and protective factors included in Model 3 were unrelated to a change in emotional problems between Cycle 1 and Cycle 2. In fact, a significant change in emotional distress was predicted from higher levels of maternal depression, parenting conflict, and poorer friendship quality, and lower socio-economic status. The implication is that the effect of separation is substantial and that it operates relatively separately from the child-level and family level predictors assessed.

Table 3: Prediction of Change in Emotional Problems: Teacher Report

	Model 1 beta(SE)		Model 2 beta(SE)		Model 3 beta(SE)		Model 4 beta(SE)	
Emotional problems, Cycle 1	.19	(.02)*	.19	(.02)*	.17	(.02)*	.17	(.02)*
Parental separation			1.00	(.24)*	.97	(.24)*	2.99	(1.2)*
Family-level risks								
Maternal depression					.01	(.01)	.01	(.01)
Socio-economic status					-.16	(.07)*	-.16	(.07)*
Violence in the home					.05	(.13)	.03	(.13)
Previous relationships, mother					.13	(.15)	.13	(.15)
Child-level risks								
Ineffective parenting					.03	(.01)*	.02	(.01)*
Positive parenting					.03	(.02)	.04	(.02)*
Friendship quality					.22	(.07)*	.22	(.07)*
Male					.05	(.09)	.05	(.09)
Age					-.03	(.02)	-.03	(.02)
Interactions								
Separation X maternal depression							-.09	(.04)*
Separation X hostility							.06	(.06)
Separation X positive parenting							-.17	(.08)*
Model fit								
-2*loglikelihood	11821		11809		11767		11758	

Note: Results are analyses from multilevel model regression. N=2,598 children. * p < .05.

Second, for both parent and teacher reports, lower socio-economic status, increased parenting conflict/hostility (i.e., "ineffective" parenting), and poorer friendship quality were consistent predictors of an increase in emotional problems. The finding that the quality of both parenting and peer relationships make separate contributions highlights the need to consider both the family and extra-familial "worlds" of middle childhood in understanding individual differences and change in emotional problems.

Third, according to both parent- and teacher-reports, the effect of separation was moderated by child factors and conditions in the family environment (see significant interaction effects in

Model 4, Tables 2 and 3). For parent-reported emotional problems, the effect of separation on a change in emotional problems was greater among boys (compared with girls), children from higher socio-economic backgrounds, and children whose mothers experienced fewer previous relationships prior to their Cycle 1 relationship. The finding that, in terms of emotional problems, boys are more vulnerable to the effects of separation is an important finding, and one consistent with some previous evidence (see Hetherington et al., 1998 for a review of the sex of child effects in research on divorce and remarriage).

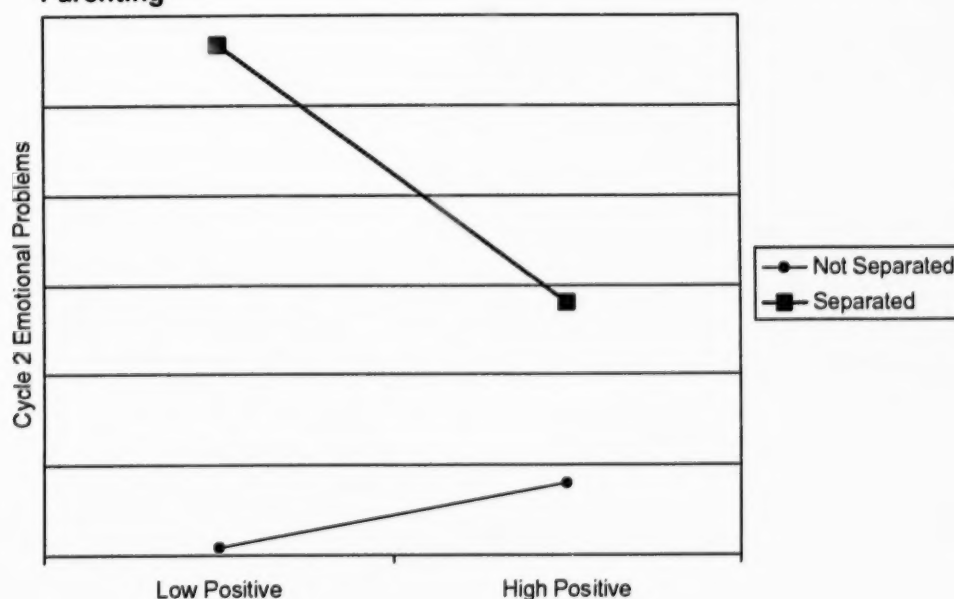
The interaction between socioeconomic status and separation was not in the expected direction; increased resources were not protective against the adverse effects of a parental separation. It is possible that because children in lower socio-economic strata were already more likely to be exhibiting adjustment problems, a further stressor was accompanied by a less marked increase compared with children who were not already exposed to psychosocial risk. Alternatively, to the extent that relationship transitions are more normative among families in lower socio-economic bands, a further separation may be experienced as comparatively less disruptive. Some support for the latter explanation is found in the interaction between separation and the number of previous relationships of the mother, which indicates a reduced effect of separation with increasing number of previous relationships. If separation is experienced as less disruptive among children who had already experienced their mothers' transitions, it may be that it is less likely to lead to a further increase in adjustment problems.

Teacher reports also indicated that the effect of parental separation is modified by the presence of other risks. Specifically, a greater increase in emotional problems following separation was found in children whose parents were experiencing relatively low levels of depressive symptoms. This may be explained by a ceiling effect. That is, for children who are already at high risk for emotional problems (by virtue of having a depressed parent), the additional impact of a parental separation is relatively minimal compared with the effect of a parental separation among children not experiencing this risk.

Particularly striking is the significant interaction between parental separation and positive parenting in predicting a change in teacher reported emotional problems. This interaction is graphed in Figure 4. The finding indicates that positive parenting substantially reduces the level

of emotional problems for those children who experienced a separation between Cycle 1 and Cycle 2. Among those children who experienced a parental separation, those who also received supportive parenting were adjusting considerably better than those children who did not receive supportive parenting. Among those children who did not experience a separation, there was no association between positive parenting and a change in emotional problems. In this interaction, positive parenting fulfills the role of a protective or buffering effect: it has an effect only in a stressful context.

Figure 4 **Cycle 2 Emotional Problems According to Separation and Positive Parenting**



The fourth noteworthy finding is that there was remarkable agreement between parents and teachers on the predictors of change over time. The similarity of effects is especially noteworthy given the different samples involved and the concerns about rater bias for the parent-reported outcome model. There was, however, one example of a non-replication that may be associated with shared method variance. In the parent model (Table 2) but not in the teacher model (Table 3) parental depression was associated with an increase in emotional problems. It may be that depressed parents were more likely to mis-perceive their child's behaviour as disturbed, both cross-sectionally and over time.

3.3.4 Is there significant *between-family* and *within-family* variation in the effects of separation on children's adjustment?

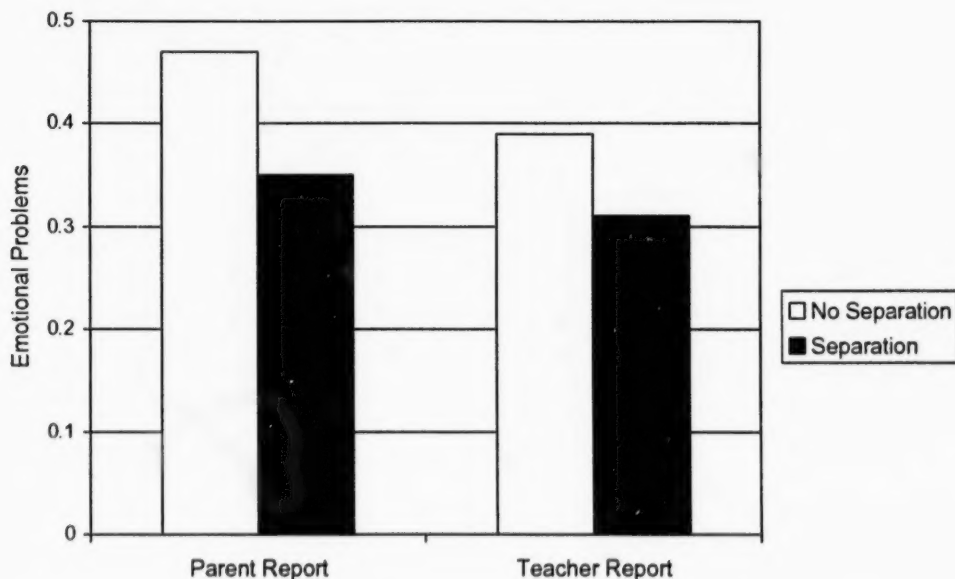
In the next section we exploit the advantages of multilevel modeling and examine the extent to which there is family-level (between-family) and child-level (within-family) variability in the connection between parental separation and child outcomes. Analyses reported in the previous section on the effects of separation are concerned with sample-wide mean level differences in children's well-being. Using multilevel modeling techniques, we can also ask whether separation operates to increase variation in children's adjustment, and whether that effect is pronounced among all children in a family (i.e., "family-wide"), or is instead better viewed at the level of individual children (i.e., there is no "clustering" of effect according to the family children live in).

One novel question we can ask is whether or not the experience of a parental separation increases the differences in behaviour among children in the same family. This would be in line with a diathesis-stress model in which it is hypothesized that particular individuals are more vulnerable than others to the negative impact of stressors. This hypothesis concerning variability of children within the same family as a function of separation would be confirmed if children within separated families were less alike than children in non-separated families.

To answer the above questions, we allowed the effect of separation to vary across families and individuals. That is, it is allowed to be a "random effect" in the multilevel models. Given our focus on change, we regress Cycle 2 emotional problems on to separation after first controlling for the Cycle 1 emotional problems. As noted above, we focus on parent- and teacher-reported emotional problem outcomes because these were the adjustment variables for which there was a significant change over time associated with separation.

For parent-reported emotional problems there was no evidence that the separation effect varied across families. However, there was a significant random effect of separation at the child level. In other words, siblings in families that recently experienced separation were less similar to one another than were siblings in families that stayed together between Cycle 1 and Cycle 2. Thus, the effect of separation based on parent report data was not only to increase mean level of emotional disturbance across the sample, but also to increase differences among children in the same family.

Figure 5: **Intra-class Correlation in the Change in Emotional Problems According to Separation Status and Reporter**



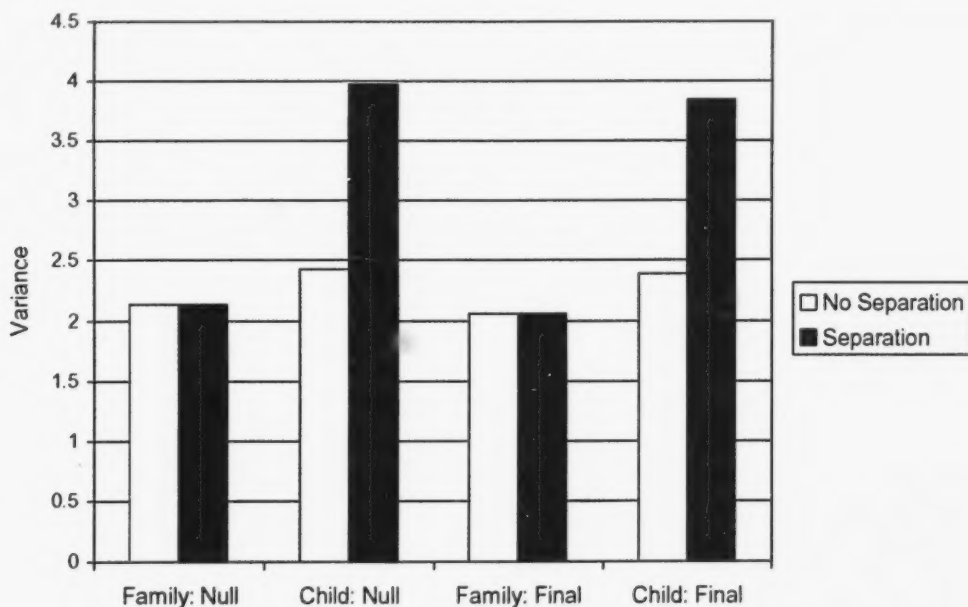
The intraclass correlation shows us the degree to which children in the same family are similar to one another. The intraclass correlation is the percent of family-level variance divided by the total variance. Higher values signify greater sibling similarity within the family. That is, more variability can be accounted for by family-wide processes. We can examine the intraclass correlation separately for separated and non-separated families. The intraclass correlations for the parent and teacher reported change in emotional problem data are graphed in Figure 5. According to parent data, children whose parents remained together over the 2-year period are more similar to one another than those who separated (.47 versus .35).

With regard to the teacher data the random effect at the child level failed to reach significance (child level variance [standard error], .76 [.44]). A similar pattern to that seen in the parent data was evident, however, in that children in intact families showed less variation than children in separated families. The intraclass correlation for the teacher data was .39 for children in non-separated families and .31 for children in separated families.

3.3.5 Why are different children *differentially* affected by parental separation?

The previous set of analyses established that there was significantly greater child-level variation in the increase in parent-reported emotional problems among those children who experienced a separation. The analyses reported here are an extension of the moderator findings that we reported in section 3.3.3. Instead of relating to average effects within the population we can look at whether these moderator effects explain why children within the same family respond differentially to a "shared" parental separation. For these analyses we re-ran the multilevel models displayed in Table 2, but in this case we allowed separation to be a random effect at the child level as explained in section 3.3.4. We expected the estimate of the child level variance (the extent to which children in the same family are different from one another) to be reduced by the entry into the equation of predictor variables (including the moderator effects evident in section 3.3.3).

Figure 6: **Family-level and Child-level Variation in Cycle 2 Parent-reported Emotional Problems According to Separation Status: Null and Full Model Results**



Contrary to prediction, the combination of child-level and family-level predictors and their interactions did little to reduce the increased child-level variance attributable to separation. This can be seen in Figure 6. In this figure we show the family and child level variance estimate

before the addition of all the predictors (the null model) and after the addition of the predictors, and their interactions (the final model). The key finding is that the significantly greater variability amongst sibling in the separated families could not be accounted for by the predictor variables entered into the equation. The implication of this finding is taken up in the discussion.

3.3.6 Summary

1. Even when controlling for the initial level of disturbance, marital separation was associated with an increase in emotional problems (but not aggression) in children.
2. Complementing the previous result is the finding that increased levels of adjustment problems in children who experienced a separation were evident before the separation event.
3. A constellation of individual child-level and family-level risk factors explained the increased level of emotional problems between cycles, but these risks were not found to mediate the effects of separation on children.
4. The effect of separation is not only to increase mean level of disturbance in a sample, but also to increase the variation among children who experienced a separation. According to parent report data, children even in the same family were differentially affected by their parents' separation. However, we were limited in our ability to explain this form of variability.
5. The effect of separation on children was moderated by protective factors. For example, for children who experienced a parental separation, positive parenting protected children against an increase in emotional problems (according to teacher report data).
6. It is important to remember that the analyses in this section (3.3) explained increased levels of disturbance between assessments. It does not necessarily follow that the same pattern of risk or protective factors also explains the "effects" of family type (which would include a history of separation) before the further separation after Cycle 1 (i.e., the mean differences already observable at Cycle 1).

3.4 What risk and protective factors predict initial levels of adjustment using cycle 1 data?

The longitudinal analyses indicated that much of the variation in Cycle 2 aggression and emotional problems is accounted for by stability in problems. Although it is hardly surprising that behavioural and emotional problems are stable across a 2-year period, there are a number of important implications for interpreting those findings. Most important among these is that the

Cycle 1 behavioural problem score includes variation attributed not only to the stability of behavioural problems across the 2-year period, but also the stability of hypothesized psychosocial risks. Thus, for example, we might not expect family type to be a significant predictor of adjustment problems at Cycle 2 after controlling for the level of adjustment problems at Cycle 1. This is not to say that family type is unassociated with the behavioural and emotional problems in children. Rather, the effect of family type on children's aggression and emotional problems well-established by Cycle 1 and, as a result, the effect of family type on mean level of adjustment difficulties is statistically controlled when the Cycle 1 measure of behavioural problems is included in the analysis. Family type would be a significant predictor in the longitudinal analyses only to the extent that the rate and level of change in behavioural and emotional problems over the 2-year period varies according to family type.

The longitudinal analyses should therefore be interpreted in the context of an analysis of where the children started from, and the risk factors that explained initial levels of adjustment difficulties. Accordingly, as a data analytic "post script", we present analyses on the effects of family type and associated risks on children's adjustment at Cycle 1. In particular, we adopt the analytic approach of multilevel modeling to test specific models about the family-level and individual-level operation of specific risk factors. Rather than present a detailed analysis of the risks that lead up to adjustment problems at Cycle 1, we instead raise and address a number of questions using teacher-reported aggression as an illustration. We chose teacher-reported aggression as an exemplar for two reasons. First, we wanted to assess the predictors of a Cycle 1 outcome for which there was little predictable change between assessments, at least as a function of parental separation. Second, models based on teacher-reported outcomes do not suffer from the problem of shared method variance (the same respondent providing data on both predictors and outcome). The following analyses are based on multilevel model results, using the maximum sample available at Cycle 1 for teacher report ($N=6,151$ children) and using the cross-sectional weights.⁴

⁴ A similar analysis in which we examined the relationship between family type and children's aggression at Cycle 1 was described in section 3.3.1. That analysis was limited to children who were included in the longitudinal sample. The analysis described in this section was carried out on all children with teacher data at Cycle 1 and allowed for much better estimates of the effect of living in different family types, as well as the examination of sibling similarity in different family types. Results with respect to living in a stepfamily were similar across the two analyses.

3.4.1 What is the connection between family type and children's adjustment?

Meta-analyses and research reviews of dozens of studies, primarily conducted on US samples, suggests that there is a small to moderate sized connection between membership in a stepfamily or single-parent family and behavioural and emotional problems in children (Amato & Keith, 1991; Hetherington, 1999). What is the degree of association in a nationally representative sample of Canadian children?

Regression analyses indicated that relative to children in Biological families, higher levels of teacher reported aggression were found for children living in stepfather (beta = .60, SE=.10), stepmother/complex (beta = .54, SE=.22), and single-parent families (beta = .67, SE=.08). The effect sizes indicate that being in a "non-traditional" family was associated with about a ½ point increase in the aggression scale.

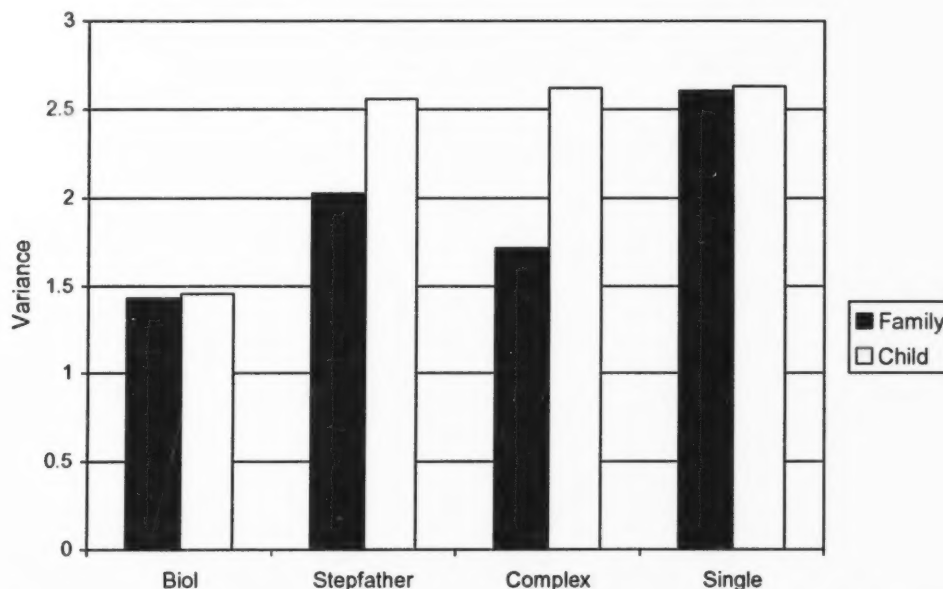
3.4.2 Do children in the same family adjust differently to "shared" family environment?

Multilevel modeling regression analyses were used to test the hypothesis that children within the same family would be differentially affected by a shared family environment. Behavioural genetic and developmental research suggest that we should expect significant differences between siblings on most measures of behavioural adjustment. These same studies also suggest that we would expect minimal variance in child adjustment to be attributed to family-level factors. In other words, much of the prior research on children living within the same family suggests that (once genetic variance is considered) membership in the same family would have no bearing on children's behavioural and emotional adjustment. Our findings both confirm and challenge previous models about how risk factors operate in families to influence children's well-being.

For teacher-reported aggression, we found that there is substantial variation attributable to both child-level and family-level influences. What is more interesting, however, is that the levels of between-family and within-family differences in child adjustment varied considerably according to family type. That is, when we allow family type to be a random effect at the child-level and family-level, the improvement in fit is substantially improved. The results are displayed in a Figure 7. Substantially more variation in teacher-reported aggression is found at both the family-

and child-level for children in non-traditional families. The increased rate of variation is especially noteworthy for family-level variance in single-parent families.

Figure 7: **Family-level and Individual Child-level Variance by Family Type: Cycle 1 Teacher Reports**



When we then examine the intraclass correlations (family-level variance/total variance) according to family type, we obtained correlations of .50 in biological families, .44 in stepfather families, .65 in complex/stepmother families, and .50 in single-parent families. Across the four family types studied, children within the complex/stepmother families are more alike than are children in other family settings. This findings is especially noteworthy because the percentage of siblings who are not full siblings is greatest in this group of families. Thus, although on the basis of genetic hypotheses we might expect the greatest differences (i.e., the smallest family level effect) in complex stepfamilies, we observe the greatest similarities. The implication is that children in high-stress family contexts, such as complex/stepmother families, may have family-wide influences on children. This findings mirrors the result of a smaller study of family structure in the UK (O'Connor et al., in press).

3.4.3 What explains family-level and child-level variation in outcomes?

So far, we have demonstrated that children in stepfamilies and single-parent families have higher mean levels of problem behaviour compared with children in biological families. We have also shown that there is greater variation at the family and child levels in adjustment difficulties. We now turn our attention to examining the risk and protective factors that explain both between-family and within-family variation. For this analysis, we used multilevel modeling in which explanatory variables were defined at the family or child level.

Results from the analysis of teacher reports of children's aggression reveal that a complex network of individual child-, family-, and community-level risks explain individual differences in aggression at Cycle 1. Importantly, these factors largely, but not completely explained the family type differences in problem behaviour. That is, once we account for the hypothesized risks that co-occur with membership in a non-traditional family, the family type "effect" is much reduced, although it still remains significant. Similarly, when we consider variation in teacher-reported aggression at the child-level and family-level, we find additional child-level variation (and, for single-parent families only, family-level variation) even when mediating risks are considered.

The most important family-level predictor of teacher-reported individual differences in aggression was socio-economic status ($\beta = -.21$, $SE = .04$). The remainder of significant predictors were child-level variables: violence in the home ($\beta = -.16$, $SE = .06$; lower scores indicate more violence), ineffective parenting ($\beta = .06$, $SE = .01$), positive parenting ($\beta = .03$, $SE = .01$), parental transition ($\beta = .27$, $SE = .07$) and poorer friendship quality ($\beta = .46$, $SE = .04$). In addition, there were significant interactions between family type and other risks. The most notable of these was the finding that poorer friendship quality had a stronger impact on teacher-reported aggression for children in single-parent families and stepfather families, compared with biological families (betas for the interaction: $\beta = .39$, $SE = .09$ and $\beta = .43$, $SE = .13$ for single-parent families versus biological families, and stepfamilies versus biological families, respectively). However, for complex/stepmother stepfamilies, poor friendship quality was less important in predicting aggression than it was for children in biological families (β for the interaction = $-.46$, $SE = .22$). Figure 7 reveals that family type continued to moderate the

variability in children's aggression even after the hypothesized child-level and family-level variables were statistically controlled.

The brief outline of the analyses for Cycle 1 problem behaviour were carried out in order to understand some of the reasons why children started out differently in their levels of maladjustment. The cross-sectional analyses are noteworthy in demonstrating that we need to consider **from what point of initial disturbance** a change was detected. The longitudinal change analyses are striking in demonstrating that we were able to predict change over time.

It is necessary to highlight two further findings from these multilevel model results. First, in what is an especially novel finding, we observed that a risk measured at the family-level, family type, could affect children in the **same** family differently. This was illustrated by the increased child-level variance across stepfamilies and single-parent families. In addition, we found evidence that other risks that had been assumed to be "shared" by siblings (and to have similar effects) to have differential effects on siblings. Thus, there was some evidence of interactions between child-level and family-level risks in explaining child outcomes. An important lesson from these analyses is that although it is important to distinguish between child-level and family-level risks, identifying risks provides no necessary clues as to their mode of operation. Risks **measured** at the family level may not operate on a family-wide basis, and risks **measured** at the individual child level may have family-wide effects. Second, there were consistent differences between stepfather and stepmother/complex stepfamilies, suggesting that we should reject the hypothesis that all **types of** stepfamilies influence children's development similarly.

4. Discussion

4.1 General overview and integration with previous findings

Family transitions brought on by marital separation are an important topic of study because of the frequency in the population and because of their connection with serious adjustment problems in children and adults. The findings from the NLSCY add substantially to our understanding of the connection between family stresses, exemplified by a parental separation, and children's well-being. The findings replicate and extend those reported in previous studies in other western countries and offer important insights into family life in Canada.

Canadian families are not unique in experiencing high rates of change. The findings concerning the frequency and predictors of family change and their consequences for children's adjustment are remarkably consistent with previous studies carried out in the US and UK. For example, the rate of family type change across diverse family constellations was well within the range of estimates reported in US and UK samples (Booth & Amato, 1991; Clarke & Wilson, 1994; Furstenberg & Cherlin, 1995; O'Connor et al., 1999a). A central point of agreement among studies, including the current investigation, is that stepfamilies and single-parent families are far less stable than biological or "intact" families. We know that the higher rate of separation in stepfamilies compared with biological families cannot necessarily be attributed to poorer marital quality in the former and, may instead be more closely connected with conflict in step-relationships (Crosbie-Burnett, 1984; O'Connor & Insabella, 1999; White & Booth, 1985). Additionally, a complex network of overlapping risks explained the strong "selection effects" whereby two-parent families become one-parent families. This was the first illustration of the covariation of psychosocial risks affecting children and families in our analytic program.

Children in the longitudinal sample (for parent report data) were between 4 and 9 years of age by the time they are enrolled in the study. That is, much had gone on in the lives of the children prior to our first assessment. As a result, not only did we seek to describe change over time, but also the factors that led up to the very considerable individual differences in behavioural disturbances in children at the outset of the study.

The results indicate several important findings about the experience of risks and their effects prior to the start of the study. The first of these is that many of the factors that we found to predict separation are also known to increase children's maladjustment (notably, parental depression and socio-economic status; see Amato, 1996; Aseltine & Kessler, 1993; Axinn & Thornton, 1992; Weissman et al., 1991). These findings raise an important alternative hypothesis about the origins of increased rates of behavioural problems of children in stepfamilies and single-parent families. It may be, for example, that membership in a stepfamily or single parent family and the experience of separation are epiphenomena of more basic risk processes tied to the parents or community in which the family lives. This position is further strengthened by the finding that problematic adjustment is evident in children prior to a separation. Thus, a cross-sectional design would simply not allow us to rule out the alternative hypothesis that the effects of separation (and family type more generally) on children's well-being are **not** directly associated with behavioural problems in children.

The longitudinal analyses made clear that the effect of separation was associated with a further significant increase in parent- and teacher-reported behavioural problems, although a significant rise in maladjustment was evident only for emotional problems. We can only speculate on why separation was related to an increase in emotional problems but not an increase in aggression. It may be that there is some specificity in environmental risks, in that certain risks were more likely to be associated with particular child outcomes than other risks. For instance, a number of researchers have found that inter-parental anger expression is more likely to be associated with aggression than internalizing problems in children (Jenkins, 2000), and it is inter-parental conflict that is thought to lead to a raised level of aggression in children whose parents separated (Cherlin et al., 1991; Rutter, 1994). We obtained empirical relationships between inter-parental conflict and child adjustment in the cross-sectional analyses reported in section 3.4. Separation per se is likely to bring about a decrement in exposure to inter-parental conflict—except when custody battles result (see, Johnston et al., 1989). Thus, it may be that, within the configuration of risks that are associated with marital break-down, some risks result in emotional problems whereas others are more likely to increase aggression. We have attempted to differentiate between different kinds of risks that often co-occur, and this has allowed us to address the possibility of specificity of effects. Specifically, if inter-parental anger did decrease following

the separation, then we would not expect an increase in aggression between cycles for those children who experienced a separation (see also Morrison & Coiro, 1999, although in that study they did not distinguish between aggressive and emotional problems in children). In contrast, if emotional distress is brought on by general distress in the family environment, then we would expect that separation would lead to a further increase in emotional problems between cycles. Regardless of the dynamics involved, it is possible to rule out the explanation that the difference between behavioural/emotional problems resulted from differential rates of stability over time. There were, nevertheless, age-based mean differences over time which require consideration, namely, emotional problems increased whereas aggression decreased between Cycle 1 and Cycle 2.

What explained the variation in children's responses to parental separation? The findings for this longitudinal analysis highlight to co-ordinated effect of multiple and co-occurring risks in children's environment. Individual (age, sex), family (parenting) and extra-familial (peer relations) factors each helped to explain in the increased rate of emotional problems following separation. These findings remind us to maintain a conceptual and clinical focus on the "ecology" of human development as outlined by Bronfenbrenner (1986) nearly two decades ago. Additionally, it should be noted that the effects of a further separation per se between cycles explained variance in Cycle 2 outcomes; at least in this instance, the effects of separation did not operate through the multiple risk factors included in the model (e.g., such as maternal depression). Precisely what the other aspects of the separation were that explained increased levels of emotional problems therefore requires further research attention.

One of the key findings in this report is that the effect of separation was contingent on other aspects of the child's environment or circumstances. In other words factors such as family socioeconomic status, gender of child, depression of mother, previous relationships of mother were found to moderate the effects of parental separation on children's emotional distress. Particularly noteworthy for clinical interventions and policy is the finding that positive parenting protected children against the otherwise expected increase in emotional problems. This effect was observed for teacher reports of disturbance, and can not therefore be attributed to shared method variance. This finding exemplifies one of the more important lessons from this research: in addition to assessing main effects and mediating processes, it is equally important to consider

how the effects of risk may be moderated by family context. We also observed, in the Cycle 1 analyses in section 3.4.3, that in addition to acting as a "main effect" to increase risk for maladjustment, family type (and particularly the stresses associated with membership in a non-traditional family constellation) may moderate the impact of other risk and protective factors—even extra-familial risk processes such as friendship quality.

It is increasingly common for researchers to consider the risk and protective factors for the development of problem behaviours. Yet, one important implication of this perspective has been all but ignored: the possibility that children within the **same** family may differ in their adjustment. We are aware of only one as yet unpublished study that examined the extent to which children in the **same** family exhibited differential adjustment according to family type membership (O'Connor, Dunn, Jenkins, Rasbash, & Pickering, in press). However, that study was based on a cross-sectional sample and was therefore not able to predict if children in the same family adapted differentially to a parental separation. Our findings indicate that, as family systems and behavioural geneticists have argued, there is substantial within-family variation in child adjustment. The magnitude of within-family variation is evident in both longitudinal and cross-sectional analyses and, more interestingly, when we examine the impact of a specific major stressor such as parental separation or family type. However, it is important not to overstate the impact of within-family or child-specific variation. There was considerable evidence that individual differences in child behaviour could also be explained according to the family they lived in—between-family variation. For instance, children in complex stepfamily were found to be more similar in their aggressive behaviour based on teacher report than children in intact biological families. It is thus important not to reject the hypothesis that some risk factors may operate on a family-wide basis influencing, to some degree, all children within the family.

Methodologically, the cross-informant analytic approach was critical for determining the extent to which the results obtained may have been influenced by shared method variance—the same respondent providing information on the risks and outcomes. The fact that the results concerning mean level effects and random effects were remarkably consistent across parent-reported and teacher-reported outcomes is noteworthy and underscores the robust nature of the findings obtained.

4.2 Limitations

Interpretation of the research findings must also be based on the study's limitations. The most important of these is the methodological problems introduced by rater bias. This is a particularly marked problem in the analyses of parent-reported outcomes, for which the same respondent provided information on the risks and outcomes. In this case, "true" variance is confounded with method variance. It is likely that the magnitude of effect of parenting, among other variables, was inflated because of shared method variance. Support for this interpretation is suggested by the smaller effect of parenting observed for teacher-reported outcomes. However, even the analyses of the cross-informant design (teacher-reported outcomes predicted from parent-reported risks) are limited because the same respondent provides information on all predictor variables. In this case, the shared method variance may result to an inflated covariation among risk variables.

There is the further issue of how "true" error variance is distributed (at the child and/or family level) in the multilevel model analyses. The finding that there is substantially more family-level variation in the parent-based models than the teacher-based models is likely to be a result of the fact that the same reporter provided data on all children within the family for the former but not the latter. A further consideration is that it is likely, although not certain, that random measurement error would be attributed to child-level variance. If this is the case, then the magnitude of within-family differences would be inflated. In other words, child level or within-family variation is a combination of true within-family differences as well as error variance. Our inability to explain child-level variation in response to parental separation may be partly explained by the possibility that this child-level variation reflects random measurement error rather than "true" differences between siblings.

Finally, although the sample size is large, there was limited power for some analyses, especially those concerning changes in rare family types, notably complex stepfamilies. Caution is warranted when interpreting longitudinal results for this group of families. Cross-sectional comparisons involving complex stepfamilies should also be considered in light of the limited power to detect significant differences.

4.3 Policy implications: Lessons from research

Large numbers of Canadian children will experience divorce and remarriage over the course of their lives, and it is increasingly common for children to experience multiple transitions (Hetherington et al., 1998). Understanding what makes some children vulnerable and what factors exist to buffer children from the adverse consequences of family transitions is a central concern of mental health professionals, educators, social scientists and policy makers.

In order to plan appropriate interventions for children we need to understand which children are likely to negotiate this challenge without significant risk to development and which other children are likely to experience longer term harm. Furthermore, are the factors that moderate children's adjustment to this common stressor operating across families, or must we target individual children in every case? Answers to this questions will enable us provide screening criteria that will make it more likely that we can identify children in most need of intervention.

In this regard, it is especially noteworthy that positive parenting protected children undergoing parental separation. Parenting quality usually suffers during the course of an often protracted separation, as parents who are dealing with their own distress and turmoil are less available to support their children, who are also suffering (Hetherington & Clingempeel, 1992). However, where parents are able to provide support for their children, the adverse effects of the separation are much reduced. Efforts to support parents undergoing the stress of a separation may, by enabling them to be more responsive parents, have indirect beneficial effects for children.

At this point it is difficult to know whether differentiating between individual and family level risks will be beneficial for affecting the impact of intervention programs. The unique research design in the NLSCY allowed us to test previously untested (and largely previously untestable hypotheses) about the effects of family change on the well-being of children. The key findings about within-family variation is that children even within the same family exhibited differential adjustment across family type, and in response to a specific family stress, parental separation. An implication of this finding for policy and practice is that interventions may be most effective if they are directed toward individual children. Targeting children (or more likely parent-child dyads) may, in some circumstances, "spill over" to influence other family members (Seitz & Apfel, 1994). There are, of course, many examples of interventions directed at the family level that are expected to affect functioning of all individual family members, such as income

supplements to families. Clearly, a combination of research evidence and practical (e.g., resource) constraints must determine the shape of interventions. What we would emphasize here is simply that because siblings who "share" a stressor may not share its effects, interventions targeting families will also likely have differential effects on the children within the family.

A further policy question arising from these findings concerns the developmental origins of the key risks involved, and the pathways of interconnected risk trajectories that are established relatively early in the child and family's life. Several risk factors for children's maladjustment were likely evident before the current family and relationship formed. If there is a single lesson from the analyses of the predictors of separation, it is this: many of the risks for children's maladjustment are already in place by the time the family is formed. Effective efforts to assist children and families in transition may therefore be able to identify families at risk for having a transition. Many of the factors predicting separation found in this study have been found in other samples (O'Connor et al., 1999a), suggesting that they are likely to be robust risks that could provide a useful means of identifying at-risk children and families. Furthermore, because risks for separation are also known to predict poor adaptation (with or without separation), there may be additional strategic benefits (e.g., cost effectiveness) of using these risks for identifying families most likely to require intervention.

Understanding the mechanisms underlying the vulnerability of children in stepfamilies to subsequent stresses will make it possible for us to target intervention more effectively. Thus, there needs to be a dialectic among "basic" research findings, policy developments, and results from interventions. These issues are particularly important given the need to understand how children in diverse family types may, for example, differentially benefit from and access support services. The NLSCY dataset will allow us to tease apart these different effects and to determine whether these effects are independent of one another.

4.4 Further directions for research

The above analyses provide a detailed picture of the dynamics of family change and the family dynamics of change in Canada. The information provided offers a starting place for concerted and coordinated efforts to alleviate the problems faced by children undergoing family transitions. In this concluding section we raise a number of issues requiring further research attention.

Further research is needed to assess the clinical or extreme levels of disturbance in children. For example, how many of the children across the family types have a clinically or statistically extreme level of adjustment difficulty? Following a separation, how many children can be described as having clinically or statistically extreme level of adjustment difficulty? Also of interest is the extent to which the effects of family type, separation and associated risks operate throughout the range of problem behaviour. It may be, for example, that the risks and problem behaviours described in this report are clustered in a disproportionately small number of children and families.

Further research is also needed to follow children and families as they continue to experience separations and stresses. As the children move into adolescence, research is especially needed on the effects of family type and separation on children's affiliation with delinquent peer groups, problems in peer relations including dating and sexual behaviour, entrance into early forms of delinquency, and school failure. Aside from these new, "age-appropriate" developmental outcomes for children and adolescents, there is a need to examine whether the effects of parental separation on children's well-being are greater during a period of normative transition, such as adolescence. Finally, further follow-up will allow us to track the progress of children who initially responded to parental separation with considerable distress. Our clinical, conceptual and theoretical models are not yet sufficiently developed to distinguish those children who exhibit short-term distress following parental separation from those who appear to exhibit sustained maladjustment through childhood and adolescence.

One limitation of this research is that we focused on residential parents. It remains for further research to consider how non-residential or non-custodial parents contribute to their children's well-being. The impact of co-parenting relationships between ex-partners as well as the connection between financial arrangements and non-custodial parent involvement and general family harmony, remain key issues for research. Findings from these analyses may have direct implications for family support policies.

Finally, this study focused on the effects of family stresses on children's well-being. Alongside this information, it is important to know what kinds of services are being accessed by children in need, and whether there are particular obstacles to at-risk children, especially those in non-traditional families.

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